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The Effect of Mantram Repetition on QOL in Low-income, Urban Dwelling Older Adults

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THE EFFECT OF MANTRAM REPETITION ON QOL IN LOW-INCOME, URBAN DWELLING OLDER ADULTS

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ABSTRACT

Background: Quality of life is an important concept of increasing significance for the healthcare in the United States, especially when taken in perspective of the aging population. Low-income, urban dwelling older adults are challenged in a number of ways that may negatively impact their QOL. This unique group is prone to report lower QOL, therefore, interventions targeted to improve QOL are timely. The purpose of this study was to describe the effect of mantram repetition (MR) on QOL in a sample of low-income, urban dwelling older adults.

Methods: A quasi-experimental pre-posttest study was conducted using a sample population of low-income older adults recruited from a community wellness center for older adults from September 15th, 2017 to December 7th, 2017. Independent study variables included age, gender, monthly income, previous meditation experience, history of psychiatric illness, housing status and MR frequency. Dependent study variables included QOL domains scores derived from the World Health Organization Quality of Life -BREF. Descriptive and inferential statistics were conducted using SPSS, version 24.

Results: It was determined that there were no significant differences in demographic variables between participants who completed the study (n=36) and those who did not (n=36). Results from the statistical analysis indicated there was not a significant increase in QOL over the course of the 8-week intervention period. Only two of the independent variables, monthly income (r=-.39, $p < .05$) and history of psychiatric illness (F(1,32) 21.38 $p = .034$ (η^2 =.36) demonstrated a significant relationship with one of the dependent variables (Psychological QOL). Mantram repetition frequency did not contribute a

significant amount of variance to post-intervention QOL domain scores.

Conclusion: This study demonstrates the plausibility of implementing a MR program in a day center for low-income, urban dwelling older adults. While this study did not significantly demonstrate that MR improved QOL, the findings did suggest that participants exhibited some improvement in QOL. The results of this study have reported relevant findings that may inform differently designed MR interventional studies.

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Lastly, I would like to thank the older adult clients who participated in my study. Your lives inspired me to become a nurse scientist and to use the pursuit of scientific knowledge to help the world at large as well as those closest to me, who I hold so dear.

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CHAPTER 1

INTRODUCTION

Scientific research has supported that biological aging and chronic disease are associated with disability and decreased QOL (Trombetti et al., 2016; Motl & McAuley, 2010). Quality of life is an important concept of increasing significance for the healthcare system especially when taken in perspective of the aging population of the United States. By 2030 more than 20 percent of the U.S. population is projected to be aged 65 and older, which contrasts to the comparisons of 13 percent in 2010 and 9.8 percent in 1970 (Ortman, Velkoff & Hogan, 2014). Coinciding with the aging of the population is anticipation of a considerable increase of medical and social services (Goulding, Rogers & Smith, 2003). Federal and state insurance programs for long-term care expenditures for older persons with disability were $43 billion in 2000 (Wiener & Tilly, 2002). The higher prevalence of costly chronic conditions among older adults is projected to result in this significant financial burden. At the same time, the continual advancement of medical science to prolong human life has come under scrutiny as a shift in focus away from an understanding that scientific, medical and technological advancements alone are solely responsible for improvement in individuals' QOL. It is important to consider that many older adults who develop chronic conditions report decreased QOL and that there may be a preference for preserving higher levels of QOL over longevity (Rejeski & Mihalko, 2001).

Background

The concept "Quality of Life" has become increasingly relevant to scientific research as it relates to health care since the 1960s (Day & Jankey, 1996). The study of QOL among certain populations, including that of older adults, has likewise become

more pertinent due to ongoing changes in population demographics as well as societal expectations. Despite the significance of studying QOL among older adults and the growing body of scientific literature supporting the decrease in QOL associated senescence, this topic remains an area in need of further exploration.

Quality of Life

Quality of life is a complex multidimensional concept involving a number of distinct domains, incorporating both subjective and objective measures that focus on the individual's perception of their personal well-being (Theofilou, 2013). While the concept of QOL is directly related to the experience of the individual, special interest has been paid to specific populations such as those of older adults.

Studying QOL in older adults is important not only due to the aging of the population but also to the projected financial burden of caring for older adults. Higher societal expectations of living a life of quality have promoted research focusing on the measurement and promotion of QOL in populations of older adults (Adem et al., 2013). Research has demonstrated that a number of factors frequently associated with advanced age facilitates decreases in reported QOL scores. These factors include physical health, economic resources, social support, housing status, mental health, all of which will be explored in this study. For the rising population of older adults, the association between increasing age and decreased QOL support the need for further research into QOL interventions.

Interventions to Improve Quality of Life

As previously noted, common elements among populations of older adults such as the increased prevalence of chronic illness and social isolation, decreased independence

secondary to functional impairment, mental illness and limitations on financial resources make this population particularly prone to lower reported QOL scores (Smith, Becker, Roberts, Walker & Szanton, 2016). Despite the apparent association between aging and decreased QOL in older adults, minimal research has been conducted to identify interventions to improve QOL scores among this population.

Among the relatively scant number of interventional studies exploring QOL in older adults, numerous have been restricted to specific subgroups, such as the mentally ill or those diagnosed with diabetes or cancer. Interventions used in these studies often focused on disease-specific care management and incorporated the use of extensive multidisciplinary teams. Interventions have therefore differed greatly and the majority of them have failed to demonstrate significant support regarding the benefits of the interventions on QOL in their target populations (Malderen, Mets & Gorus, 2013).

While a handful of studies explore the use of alternative therapies such as yoga or guided imagery to improve QOL scores among older adults, a far larger number explore the impact of physical activity. To date, several meta-analyses have explored the impact of physical activity on QOL in older adults. Maldern, Mets and Gorus (2013) noted in their systematic review that interventions to improve QOL in older adults may improve some QOL domain scores, but fail to significantly impact global QOL. Rejeski and Mihalko (2001) identified similar results in their review of the literature; while improvement in some aspects of QOL measurements improved, results were not ubiquitous across domains. Of note in these studies, the type and duration of physical activity regimens varied between interventions. This literature review also suggested that utilizing physical activity as an intervention to improve QOL in the older adult study

populations either failed to identify any positive association between the variables or alternatively when QOL scores did improve, scores did not improve across all QOL domains.

Mantram Repetition (MR)

Mantram repetition (MR) is one of three categorizes of meditation: focused attention or concentration techniques, open-monitoring (includes mindfulness techniques) and automatic self-transcendence (Hilton et al., 2016). Numerous people meditate seeking to reduce psychological stress and decrease the impact of various stress-related health problems. In the findings of their systematic review of the literature, Goyal et al. (2014) indicate that meditation programs can have a positive impact on individuals suffering from various dimensions of psychological stress. As a form of open-monitoring meditation, MR is a technique that is cost-effective, personalized and portable strategy for reducing stress and improving well-being (Bormann, Thorp, Wetherell & Goshan, 2008). Participants are to select a spiritual word or phrase that originate from a number of different traditional religious and wisdom traditions. The MR program was adapted from Easwaran's Eight Point Program and consists of (1) mantram repetition; (2) slowing down; and (3) one-pointed attention (Bormann et al., 2014).

Problem Statement

Low-income, urban dwelling older adults are challenged in a number of ways that may negatively impact their QOL. Prior research has informed the scientific community that due to a number of characteristics commonly associated with older adult populations, this unique group is prone to report lower QOL. Among these characteristics include an increased prevalence of chronic illness, social isolation, mental illness and limited

financial resources. Given the aging of the population and significant role QOL represents in the lives of older adults as well as healthcare providers it is imperative that further scientific identifying efficacious interventions for the improvement of QOL.

Purpose of the Study

The purpose of this study was to describe the effect of MR on QOL in a sample of low-income, urban dwelling older adults.

Specific Aims

Specific aim #1

Describe select socio-demographics, frequency of MR practice, and QOL among low-income, urban dwelling older adults.

Specific aim #2

Describe, among low-income, urban dwelling older adults, the difference in QOL pre and post learning and practicing the MR technique for a duration of eight weeks.

Specific aim #3

Describe the relationship between select socio-demographics, frequency of MR practice and QOL among low-income, urban dwelling older adults who have been instructed in and are practicing the MR technique.

Specific aim #4

Determine the amount of variance accounted for in QOL by select socio-demographics and frequency of MR practice.

Conceptual Framework

The variables for this study can be categorized as follows: independent variables (including participant socio-demographics) and dependent variables. Participant socio-

demographics will include: age, gender, perceived health status, history of psychiatric illness, monthly income and housing status. Previous experience with meditation will also be measured. The dependent variable will include four QOL domains: physical health, psychological health, social relationships and environment. See Figure 1.

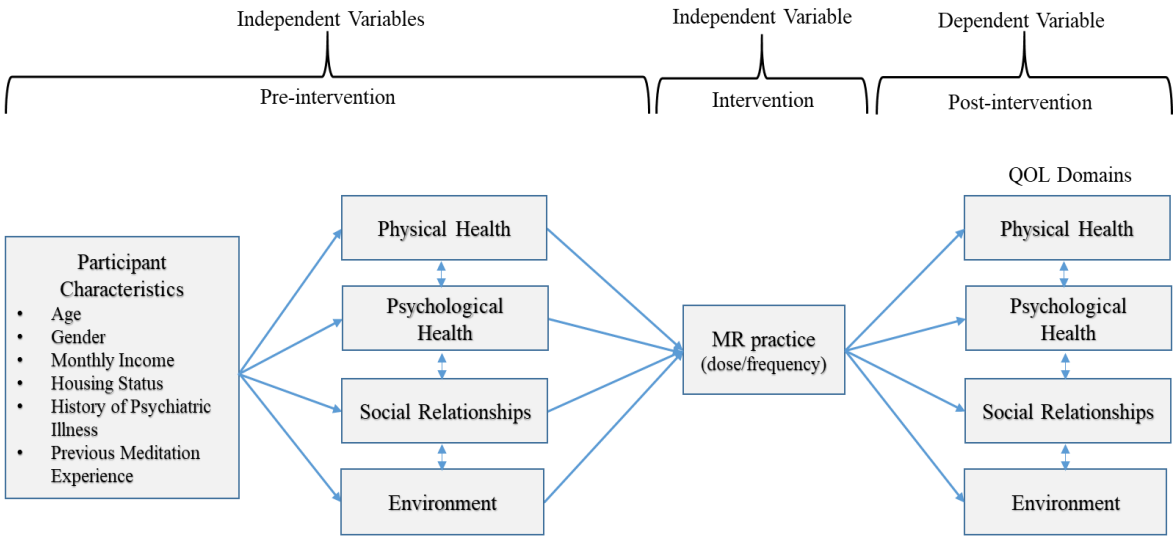

Figure 1. Conceptual Framework

The conceptual framework was developed by the investigator for this prospective study for the purpose of illustrating the relationship between the variables to be measured. The relationships between variables were informed by an extensive literature review. The participant characteristics, which will be collected using the demographic questionnaire, represent independent variables that have been associated with lower reported QOL scores. These variables will be discussed in detail in Chapter 2. The remaining independent variables: physical health, psychological health, social relationships and environment represent the four domains of QOL represented in the principle study instrument, the WHOQOL-BREF. The study intervention will be MR practice. It is projected that continued use of MR over the course of the eight weeks of

the study will have a dose dependent effect, in that the more consistent participants are with daily meditation the greater the improvements in reported QOL. Again, the variables of physical health, psychological health, social relationships and environment, comprise the QOL domains of the WHOQOL-BREF and as it is anticipated that reported QOL will improve with MR practice, improved domain scores are likewise predicted.

Study Design

This pilot study utilized a quasi-experimental, pre-posttest research design employing convenience sampling methods. The setting was conducted at a community center for older adults located in southern California. Due to the nature of its location and available services, 85% of the clientele accessing services at the wellness center have incomes at or below the Federal Poverty Level. This study aimed to enroll a representative sample of low-income, urban-dwelling older adults. The final projected participant sample included 30 older adults using the wellness center services. The data collection process for this study included client self-reported demographic data as well as a daily meditation log. Study instruments included a preliminary demographic survey and administration of the WHOQOL-BREF prior to learning meditation instruction. The WHOQOL-BREF was administered one week, four weeks and eight weeks following MR instruction. Data was entered into and analyzed using SPSS.

Implications for Nursing

Data gathered from this proposed study were hoped to form the basis for future research for other potential positive implications for the use of MR in other populations of vulnerable older adults. Furthermore, the findings of this study were hoped to support

the incorporation of outpatient and community programs targeting older adults aimed at improving outcomes related to QOL, non-specific to primary disease diagnoses.

Summary

Measurement of QOL scores holds great importance to populations of older adults as well as for the future of healthcare. Unfortunately, the existing scientific literature demonstrates that successful interventions to improve QOL are lacking. While numerous studies have measured QOL in older adult populations, there remains a paucity of particularly efficacious methods that identify interventions to improve QOL. As a first step leading to future research, this pilot study evaluated the effectiveness of practicing MR on the QOL scores of low-income, urban dwelling older adults.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter includes a survey of the relevant current literature, providing context for this pilot study. Because the proposed investigation was informed by previous research and literature on QOL in older adults, this chapter will begin with an overview of QOL in older adults. The theoretical and empirical literature regarding QOL in older adults will be reviewed and critiqued. Next, a brief overview will be provided on the development and evolution of QOL research. This will be followed by an in-depth review of QOL research as it pertains to older adult populations including important influencing factors: social support, housing status, as well as mental and physical health. Also included is a brief section discussing interventions, including MR, designed to improve QOL in older adults. Finally, a description of the gaps in knowledge that this study seeks to address will be provided.

Quality of Life

While the significance and importance regarding the exploration of quality of life (QOL) has gained in magnitude over the past five decades, the concept itself remains to some extent difficult to define. Creating a singular definition for QOL is deterred in part due to the great relevancy of the concept across a number of disciplines including nursing, medicine, economics, sociology, psychology, philosophy, social history and geography (Farquhar, 1995).

The terms QOL and health status are frequently used interchangeably by researchers. In their meta-analysis on distinguishing between these two concepts, Smith, Avis & Assmann (1999) determined QOL and health status were two distinct constructs.

While various domains are common within the constructs of QOL and health status, the relevance of each differs by individual concept. For example, Smith, Avis & Assmann (1999) found that while mental health and physical functioning are important in the measurement of QOL and health status, mental health has a far greater impact on QOL ratings than physical functioning and the reverse being true for measurement of health status. At the same time the complexity and inter-related nature of underlying contributing factors to QOL and health status has produced research indicating a significant relationship between the two. In their study of community dwelling older adults, sixty years or older, Paskulin, Vianna & Molzahn (2009) perceived health was one of the most important independent variables associated with QOL. In an earlier study, Paskulin and Molzahn (2007) provided evidence to support the direct relationship between health satisfaction and higher QOL. As QOL research moves forward the interrelated nature between this concept and health status will continue to be of significance to future studies.

QOL Research

The popularity of the term QOL first began in the 1960s. During this early time social scientists focused on the interpretation of objective social indicators such as income level and socioeconomic status, employment, education, housing status, as well as other measures of living and environmental circumstances to evaluate QOL. Research in the area of QOL would later indicate that these are examples of objective measurements that are more accurately used as proxy measurements for QOL (Bowling et al., 2002). Research in the area of QOL has expanded considerably in the past thirty

years (Mohit, 2014). With this increased focus, QOL has become an important outcome measure in evaluation of many healthcare interventions and economic analyses.

QOL measurement. A considerable amount of research regarding QOL measurement has occurred in the context of healthcare programs related to the management of populations for which patient comfort and satisfaction are more probable outcomes than seeking a medical cure (Pinto, Fumincelli, Mazzo, Caldiera & Martins, 2017). Patient populations, including the chronically ill and those receiving hospice and palliative care services, may serve to benefit most from studies involving QOL.

Despite the amount of focus placed on observable measures of QOL, the work of Day and Jankey (1996) later demonstrated that only 15% of the variance in an individual's QOL was accounted for by the objective measures utilized by the social scientist of the 1960s. As research in the area of QOL continued, it became clear that purely objective indicators could not measure QOL. In more recent years, suggestions by psychologists propose that individual subjective measures of QOL may account for the variance not otherwise captured by objective indicators (Haas, 1999). Examples of these subjective indicators include individual perception of overall QOL and proxy indicators such as social and emotional well-being, perceived happiness and life satisfaction. Approaches to the study of QOL have since evolved to include the use of two broad categories: the "normal life approach" and the "evaluation approach" (Ferrans, 1990). The normal life approach framework lends itself to instruments that utilize observable items that measure how well individuals function in society. The evaluative approach utilizes subjective indicators to measure how an individual perceives a particular aspect of their life. Today healthcare providers incorporate both subjective and objective

indicators to facilitate the provision of optimal care. Given the complex nature of the concept, both objective and subjective measures have been determined to be important in the measurement of QOL.

Economics and quality of life. Consideration of cost-effectiveness and Medicare revisions has inspired the exploration into the sizable expenditures utilized to prolong life through the use of any and all sustaining medical interventions necessary. Therefore, the value of studying QOL in healthcare is related to the increasing development and utilization of innovative and aggressive treatments, that while they may successfully extend life expectancy, the QOL in this increased survival time is in question (Haas, 1999). For example, Bond and Corner (2004) noted that while extreme medical interventions may serve to increase the length of patient survival time, this remaining time might be restricted to a life considered undesirable by the individual experiencing it. Following these trends in research and economic considerations, QOL has gained increased attention as a significant factor in the care and management of many nursing problems over the past several decades and is likely to continue well into the future.

Older Adults and Quality of Life

Studying QOL has gained special interest within a number subgroups of the general population, including older adults (Bond & Corner, 2004). Increasing interest is due in part to the aging of the population. According to the Administration on Aging (2014), each day there are 10,000 individuals who reach 65 years of age, following this trend, the population of older adults is projected to double to 98 million by 2060. In addition to the aging of the population, policy interest in reducing the financial burden of caring for older adults and higher societal expectations of living a life of quality have

promoted research focusing on the measurement and promotion of QOL in populations of older adults. A multidimensional construct, QOL is influenced by a number of complicated factors including physical health, psychological state, level of independence, social relationships and characteristics of the individual's environment (Smith, Becker, Roberts, Walker & Szanton, 2016). Considering the nuances between older adults and the general population regarding the aforementioned factors, it is essential that special attention be paid regarding the study of QOL in older adults.

Numerous studies have also supported the association between increasing age and lower reported QOL scores (Trombetti, Reid, Hars, Herrmann, Pasha, Phillips & Fielding, 2015). Related studies have explored the negative influence of age on physical, mental, social and functional aspects of life (Baumann et al., 2009). The rationale behind this association is complex, multi-factorial and emphasizes the difference between QOL in older adults versus other sub-sets of the general population. By evaluating concerns regarding individual needs and values from different populations such as older adults, researchers hope to isolate important factors for individual QOL values. Over the years a variety of paradigms have been developed regarding QOL in context to the study of older adult populations.

Conceptualizing QOL in Older Adult Research

Given the complexity of QOL as a concept, research in this area has grouped various aspects of QOL into different domains. For example, Bowling et al. (2003) noted that emerging literature on QOL and older adults emphasized the following domains: health, psychological well-being (spirituality, social relationships, activities, home and neighborhood) and financial resources. Similarly, the World Health Organization in the

development of their QOL measurement instrument (WHOQOL-BREF) has derived four domains: physical health, psychological, social relationships and environment (WHO, 1998). The list of various facets comprised within each of the four domains of the WHOQOL-BREF incorporate all domain aspects discussed by prevalent earlier QOL models.

In addition, the measurement and understanding of QOL in older adults has been built with increasing focus of the concept of successful aging. Rowe and Kahn (1997) describe the multidimensional model of successful aging as including three main components: avoiding disease and disability, maintaining high cognitive and physical function and continued active engagement with life. Reviewing the main components sited by Rowe and Kahn, it is recognized that this model incorporates the aforementioned QOL domains (physical health, psychological, social relationships and environment) emphasized by QOL measurement instruments developed years later.

Utilizing a different approach, Hyde, Wiggins and Blane (2003) also discuss the diverse aspects of QOL among older adults. The authors describe a "need satisfaction" approach consisting of four domains: control, autonomy, self-realization, and pleasure. The "need satisfaction" approach proposes that as we reach old age QOL is conceptualized as the degree to which human needs are satisfied in the context of control, autonomy, self-realization and pleasure (Doyal & Gough, 1984).

Similar studies regarding human needs as part of the foundation of QOL have also been explored by Bowling and Gabriel (2004). Bowling and Gabriel noted that studying QOL in older adults from the "need-satisfaction" perspective approach appropriately emphasizes the focus predominantly on the perceived satisfaction, expectations and

fulfillment of the needs of older adults, providing unique differences from other populations.

A qualitative study by Grewal et al. (2006) sought to determine attributes of QOL in older adults outside of health or other influences. Data analyzed from in-depth interviews suggested that reduction in QOL scores were a result of an individual's inability to remain independent as opposed to being a direct reflection of poor health.

Contrary to Grewal et al. (2006), more recently, Hamam-Raz, Shirira, Ben-Ezra and Palgi (2015) explored the inverse relationship between functional limitations and QOL of older adults diagnosed with cancer. The authors proposed that lower QOL was associated with older respondents as they were more prone to detrimental health conditions that negatively impact life satisfaction.

Socioeconomic Status and QOL in Older Adults

The relationship between economic resources and QOL has been described in recent studies. In populations of older adults, factors associated with increasing age, including the reduction of personal and economical resources, have been shown to exhibit a negative impact on QOL (Cohen, 2014). As mentioned previously, economic status and poverty are examples of objective measurements used as proxy measurements for QOL. With consideration for this phenomenon, Murphy and colleagues (2007) have discussed the importance of income and material wealth on QOL in older adults.

Financial limitations associated with advancing age may inhibit participation in economic, social and cultural aspects of life, which in turn contribute to a perceived lower QOL in older adults. Paskulin and Molzahn (2007) formulated a similar hypothesis from their study of Canadian and Brazilian older adults; specifically that deficiencies in

monetary resources resulting in decreased opportunities for leisure activities resulted in lower perceived QOL. In their analysis of data from the English Longitudinal Study of Ageing, Zaninotto, Falaschetti and Sacker (2009) found that participants' lack of financial wealth was shown to negatively impact QOL in older adults. In St John, Montgomery and Tyas's (2013) study of low-income older adults, an association was noted between living in socioeconomically disadvantaged areas and an increased risk for frailty, functional loss, decreased cognitive function and an associated loss of physical independence. Older adults living under insufficient socioeconomic resources, both individual and neighborhood factors, were found to have worse overall health status, higher incidents of frailty and higher overall mortality rates (Berkman, Sheridan, Donahue, Halpern & Crotty, 2011; Lang et all, 2009).

Bielderman, de Greef, Krijnen and van der Schans (2015) discovered an indirect effect of social functioning, depressive symptoms, and self-efficacy when examining the effect of socioeconomic status on QOL. In his meta-analysis, Sirin (2005) described the relationship between socioeconomic status and academic achievement as "complex" and contingent on several factors. However, the overall research findings on socioeconomic status and academic achievement demonstrated a significant positive correlation between variables. Paskulin, Vianna and Molzahn (2009) as well as Bielderman et al. (2015) reported education to be a robust predictor of higher QOL scores among older adults. Taking this statement into consideration, continued research on the importance and significance of socioeconomic and psychosocial factors is integral for the promotion of improvements in QOL of life of community-dwelling older adults.

Social Support and Housing Status and QOL in Older Adults

The relationship between social support, engagement, housing status and QOL in older adults has been a topic of exploration in a number of studies in the past two decades. For example, in a study of 999 older adults residing in Britain conducted by Bowling et al. (2003), a number of factors were determined to contribute to higher QOL scores. Identified factors were: social roles, financial resources, social relationships, home and neighborhood, psychological well-being, retaining independence, social participation and health. Among these factors, good social resources were the most commonly mentioned factor contributing to an individual's QOL (Bowling et al., 2003).

Social support. Sufficient social support has been associated with a number of positive outcomes including lower incidences of psychiatric illness and mortality as well as higher reported QOL scores (Strine, Chapman, Balluz & Mokdal, 2008). Hayes et al. (2015) note the relationship between individuals experiencing social isolation (the absence of companionship, social support and social connectedness) and reported poorer scores for QOL, life meaning, level of satisfaction, well-being and community involvement. Older adult populations with lower reported social support not only reported decreases in life satisfaction but also increases in depressive symptoms (Liu, Gou & Zuo, 2014). Critical components for QOL in older adults are described by Bowling et al. (2003) and Borglin, Edberg & Hallberg (2005) and include family support, kinship and positive social relationships. When these components were not present, older adults reported lower QOL. Similarly, individuals who report having fewer friends and lower amounts of positive social support were found to also have decreased perceived

QOL scores (Zaninotto, Falaschetti & Sacker, 2009). Specifically for older adults, Bielderman et al. (2015) notes that perceived lack of social support, having a small social network and living without a partner may result in a negative impact to QOL.

The concept of social support has been found to be very closely related to social engagement and studies have noted that the quality of relationships is an important factor influencing individuals' engagement in their communities and with their friends and family. Grenwal et al. (2006) cited a number of studies that have found a positive correlation between engagement in meaningful activities and QOL in older adult populations. The literature purports that engagement consists of two forms: interpersonal relations and productive activity. Bowling et al. (2003) noted that engagement in the form of involvement in social activities, local community and volunteer organizations may include one or both forms of engagement and positively contribute to QOL in older adult populations (Bowling et al., 2003). A study by Bielderman et al. (2015) also demonstrated an association between positive social relationships, being active and capable of participating in meaningful activities and lack of functional limitations as being especially beneficial for QOL in older adults. As previously discussed QOL is measured within the context of several interrelated domains. In a study of community-dwelling older adults, Seah, Chan, Chan and Tan (2013) found that social aspects of QOL were found to be relatively lower than other QOL domains. Taking into consideration what is known regarding social support and engagement and its impact on QOL, more attention needs to be paid to older adults to facilitate healthy aging.

Housing. The impact of an individual's physical environment, their home and neighborhood has also been noted to be of considerable significance to the perceived

QOL in older adult populations (Bowling et al., 2003). Breeze et al. (2005) noted that it is not only the poor socioeconomic status of an individual but similar characteristics measured for the surrounding area that are associated with lower reported QOL of older community dwelling people. Older adults with scarce individual socioeconomic resources who are also living in disadvantaged neighborhoods are among the most vulnerable populations. Lang et al. (2009) explained that older adults living in such disadvantaged areas experience lower QOL and are at risk of developing frailty and consequently more likely to lose their independence and become dependent on caregivers. Stringhini et al. (2012) also found that for older adults living in deprived neighborhoods this was associated with detrimental physical, cognitive and psychological health outcomes. Among these were increased risk of developing chronic disease, feelings of loneliness and depression, as well as difficulties with mobility all of which have incidentally been associated with their negative impact on QOL in older adults.

Mental Health and QOL in Older Adults

Estimates from the World Health Organization (2017) suggest that 20% of individuals over 60 years of age suffer from mental health concerns. The most common disorders include anxiety, severe cognitive impairment and mood disorders. A number of studies illustrate the relationship between psychiatric illness and QOL.

Forjaz, Rodriguez-Blazquez, Ayala, Rodriguez-Rodriguez and de Pedro-Cuesta (2015) studied three different population-based cohorts of older adults with mental health conditions. The results of their study suggest that community-dwelling older adults diagnosed with mental health disorders were two and half times more likely to report low QOL compared to those without disorders. In their literature review on the causes and

consequences of comorbidity, Gijsen et al. (2001) also found that comorbid mental health diagnoses have a significantly negative association with QOL as well as functional status.

Depression. Depression is the most common mental health issue among older adults (CDC, 2008). While some studies have shown a correlation between QOL and mental health conditions in general, given the prevalence of depression in older adult populations more research is available in this area. For example, Chachmovich, Fleck, Laidlaw and Power (2008) found that for older adults, depressive symptoms are known to negatively influence QOL overall. In their study of urban, community dwelling older adults over age 65, Fassino et al. (2002) found that depression, anxiety, and inability to perform ADLs were all negatively associated with QOL. Among these three factors depression was found to be the most important in relationship to older adults modifying their perspective on their life condition. As the degree of depression increased for individual participants, they reported worse life condition regardless of their age. Similar results were obtained by Chang and Chueh (2011) whose study of older adult veterans indicated that older adults diagnosed with depression have a higher risk of exhibiting poorer QOL whether institutionalized or living alone in the community setting.

From the panel study, The English Longitudinal Study of Ageing, Zaninotto et al. (2009) examined the results from over eleven thousand participants, older than fifty years old and living in the community to find that among other characteristic trait depression was associated with lower QOL scores. Results from this study also found a trend that the older the age of the study participant, the more likely they were to report a more severely decreased QOL score. Further scientific support for the negative effects of depression on QOL was noted by Bielderman, de Greef, Krijnen and van der Schans (2015). Utilizing a

path analysis, it was uncovered that depressive symptoms and psychological resources were also found to have an indirect effect on QOL related to socioeconomic status.

Physical Health and QOL in Older Adults

Over the decades, the prevalence of disease in older adults has increased (Christensen, Doblhammer, Rau & Vaupel, 2009). The limitations of chronic conditions often result in difficulties performing ADLs and have a negative impact on QOL (Zaninotto et al., 2009). The importance of the relationship between functional ability and QOL has also been a distinct area of study in recent research. Bielderman et al (2015) reported that muscular strength, agility, and aerobic endurance can contribute to improvements in QOL. While their study supports the existent of a link between physical functioning and QOL, the evidence suggests that this is an indirect relationship, one worthy of further research due to the recent trends in health, aging and older adults.

In their systematic review of the literature, Marengoni et al. (2011) reported that the prevalence of multi-morbidity in older persons is between 55 and 98%. Among individuals 65 years and older, 70% report suffering from two or more co-occurring diseases. The effect of increasing numbers of co-occurring chronic diseases, associated deteriorating health, and patterns of illness on QOL has been discussed at length in the literature (Bowling, 2003). The cumulative effects of comorbidities can impact the individual on multiple levels: physical, cognitive and psychological. A strong association exists between multimorbidity, adverse health outcomes, disability, functional decline, dependence, mortality and diminished QOL. Again, Marengoni et al (2011) highlighted that poor QOL is a major consequence of multimorbidity in older adults.

Frailty, often associated with multimorbidity, has serious consequences for older adults. Fried et al. (2001) defined frailty as a clinical syndrome characterized by unintentional weight loss, self-reported exhaustion, weakness, slow walking speed and low physical activity. Frailty is also generally associated with higher risk for falls, disability, hospitalization, and mortality (Rockwood et al, 1999). The prevalence of frailty among older adults is considered to be relatively high and Gill, Gahbauer, Han & Allore (2010) have recently shown that frailty represents the principle cause of death among community dwelling older adults. Factors associated with frailty include lower education level, poverty, poor health status, comorbid chronic disease and disability (Fried et al., 2001). These factors that are associated with frailty have also been linked to poor QOL in older adults. Physical activity is particularly important for older adults as it promotes self-efficacy and improves QOL (Elavsky et al., 2005; White, Wojcicki & McAuley, 2009). Furthermore, Keysor (2003) found that physical activity in later life may be protective against functional limitations that are significant precursors to disability. Fried, Ferrucci, Darer, Williamson and Anderson (2004), in their review of the literature, have also implicated the presence of frailty as a significant contributor to decreased QOL in older adults. Functional decline and decreased engagement in physical activity, both associated with QOL in later life, contribute to major health challenges in later life (Paskulin, Vianna & Molzahn, 2009).

Interventions Designed to Improve QOL in Older Adults

While a fair amount of research exists regarding QOL as it pertains to various populations of older adults, a paucity of literature has been devoted to the study of interventions to improve QOL in these populations. Interventions to improve QOL of life

are grossly limited to a few studies with sample sizes often limited to specific sub-populations of older adults, including those suffering from heart failure, diabetes, cancer and mental illness. Specific interventions discussed in the literature include physical activity, several alternative therapies, and various multifaceted, multidisciplinary approaches.

Improving QOL in Sub-populations of Older Adults

Heart failure. Grady and Halvey (2006) reviewed sixteen studies utilizing various interventions to improve QOL in older adults with heart failure. A variety of instruments were used to measure overall and specific dimensions of QOL. None of the studies indicated a strong conclusion regarding the benefits of the interventions on QOL in their target populations. Interventions used to improve QOL among study participants were often based on heart failure disease management models and focused on health-related QOL domains. Across the studies intervention approaches differed and often incorporated multidisciplinary teams and included various assessments, home visits, patient and caregiver disease management education, diet modification, a focus on transitioning to home, stress management, social services, counseling and follow up visits.

Diabetes. To date several studies have been published regarding interventions to improve QOL among older adults with diabetes. For Sarkisian, Brown, Norris, Wintz and Mangione's (2003) systematic review of self-care interventions designed to improve QOL in African American and Latino adults with diabetes, insufficient evidence was found to support definitive conclusions. Similar to those developed for older adults with heart failure interventions, the diabetic studies included in this review included

multidisciplinary approaches to disease management focused on changing participants' knowledge, beliefs and behaviors. Interventions often incorporated educational group sessions, exercise classes, diet counseling, support group meetings, weekly appointments with a pharmacist, one-to one diabetic education and community health workers acting as liaisons between patients, families and other healthcare workers. The authors of this systematic review (Sarkisian, Brown, Norris, Wintz & Mangione, 2003) highlighted that three out of four randomized control trials identified in the literature indicated no significant improvement in overall QOL scores. The results from the fourth trial found that monthly support groups (18-month duration) did elicit significant improvement in QOL among the study's participants. In addition, the systematic review identified four uncontrolled studies, only one of which indicated improvement in QOL after the intervention was implemented.

Cancer. Research has shown that persons over 65 account for 60% of newly diagnosed malignancies and 70% of cancer deaths (Ries et al., 2000). Given the significance of advancing age as an important risk factor in the development of cancer over one's lifetime and the implications of a cancer diagnosis on an individual's QOL, there exists a small body of research pertaining to this topic. Osborn, Demoncada and Feuerstein's (2006) meta-analysis of fifteen studies yielded results supporting the use of cognitive behavioral therapy in the effective short and long-term improvement of QOL scores among individuals diagnosed with various forms of cancer.

Mental illness. Given the prevalence of mental illness among the older adult population, understandably several studies exist exploring possible interventions to improve QOL among those suffering from psychiatric disorders. Harpole et al. (2005)

studied the impact of depression care management on 1,801 older adults diagnosed with major depression or dysthymia, and depression among older adults with comorbid medical illness. Implementation of depression care management utilized a multidisciplinary care team, including a depression clinical specialist, individuals' primary care physicians, a liaison primary care expert and a psychiatrist. Treatment options included antidepressant medications or six to eight weeks of psychotherapy. Study results indicated that over time, when compared to the control group, intervention patients receiving either medication or psychotherapy experienced greater improvement in QOL.

Several important outcomes are noted in Bartels and Pratt's (2009) review of the research literature on treating older adults with serious mental illness with an intention to improve QOL. This article critiques five studies utilizing psychosocial rehabilitation intervention programs and their impact upon participant QOL. Among the five studies, specific components of each intervention include some of the following: life skill training, positive reinforcement, cognitive behavioral and social skill training, illness self-management skills and health management training. Commonalities among all studies included: group-based interventions, explicit accommodations for individuals with cognitive or physical disability and implementation of age appropriate cognitive behavioral principles. Results of these intervention programs provide encouragement for the use of these therapies to improve QOL in older adults and reiterates the importance of utilizing psychosocial rehabilitation, a holistic multifaceted approach to improving QOL in older adults.

Physical Activity

Within the scientific literature pertaining to interventions implicated in the improvement of QOL among older adults, physical activity is notably the most represented. In their systematic review of the literature Malderen, Mets and Gorus (2013) noted that interventions to improve QOL in older adults generally focus on physical activity level or psychological factors related to the concept. Overall, these interventions produced no systemic effects on QOL and studies were poor in methodological quality. The authors note that the lack of systemic effects is possibly due to the fact that QOL is clearly a multidimensional concept while many interventions that aim at improving QOL are unidimensional.

In their systematic review, Rejeski and Mihalko (2001) noted that seven literature reviews have been conducted in the past decade regarding the effect of physical activity on QOL or psychological well-being in older adults. This review referenced twelve studies, including six randomized control trials, one quasi-experimental training study and five cross sectional designed studies. Physical activity interventions involved different types of activities including aerobic exercises, strength and resistance training. The major conclusion derived by the authors indicated that physical activity positively influences various outcomes associated with overall QOL including physical function, psychological function and self-efficacy in older adults. It was noted that physical activity interventions did not result in improved QOL across all domains; and for participants' level of physical functioning was at or above the normal value and no

significant improvement in QOL was detected. Therefore, it was determined that functional level cannot be utilized as an index for QOL.

Alternative Therapies as Interventions to Improve QOL

Included in the scant body of literature pertaining to interventions to improve QOL are several studies exploring the implications of various alternative therapies on diverse populations of older adults. In their randomized control trial utilizing music as an intervention, Lee, Chan and Mok (2010) found that 30 minutes of music produced a cumulative dose effect over four weeks, statistically improving QOL scores when compared to the control group. Interestingly, after four weeks, QOL scores no longer continued to improve within the intervention group. In their randomized pilot, two group, longitudinal study examining at the effects of guided imagery and relaxation on QOL in older women with osteoarthritis, Baird and Sands (2006) found that after twelve weeks there was a significant increase in QOL within the intervention group when compared to control. One study conducted by Hariprasad et al. (2013) explored yoga as a mind-body intervention to improve QOL. After analyzing the QOL scores among the 129 participants after three months of yoga, the group demonstrated significant improvement in all domains of QOL as well as total sleep quality.

Mantram Repetition (MR). Repetition of a mantram or mantra is a meditation-like technique that has been used to induce a relaxation response (Benson, 1996). The word *mantram* in Sanskrit means "to cross the mind" (Bormann, 2005). Easwaran (2008) defined a mantram as "a powerful spiritual formula, which when repeated silently in the mind, has the capacity to transform consciousness" (page 66).

Mantram repetition is a technique that consists of repeating a simple word or phrase (mantram), silently, any time day or night to redirect the mind to assist in the dissipation of negative feelings and emotions. The MR technique was introduced in the United States from India by Eknath Easwaran and was originally part of an 8-point program to redirect thoughts, improve concentration and regulate emotions (Easwaran, 2008). Easwaran's program was designed to provide a simple, portable and practical skill for managing a variety of health-related symptoms.

Mantram repetition program. While the technique of mantram repetition can be taught in as little as 3-5 minutes, one Mantram Repetition Program has consisted of three different practices working together: mantram repetition, slowing down and one-pointed attention. These three practices were taken from Easwaran's Eight Point Program and adapted into a health education course for calming the mind, relaxing the body and connecting to inner spiritual resources (Easwaran, 2008). According to the literature, this particular Mantram Repetition Program was first developed for the US Veterans Administration (Bormann et al., 2002). This Mantram Repetition Program can be administered effectively to groups or individual students. Individuals participating in this Mantram Repetition Program are given a manual, a blank journal, weekly exercises and asked to conduct self-assessments on an ongoing basis.

As mentioned above, this Mantram Repetition Program consists of three different practices, these practices are designed to work synergistically. The first stage of the Mantram Repetition Program is choosing a personalized mantram. Once the mantram is selected and memorized it is to be repeated silently, with intention, as often as possible. The purpose of using the mantram as often as possible is so that eventually MR becomes

an automatic response in times of stress (Bormann et al., 2002). Slowing down, the second practice, is a technique that essentially facilitates the user taking a break from a situation to reevaluate priorities. Finally, one-pointed attention, is a technique used to assist the individual in focusing on one task at a time even in stressful situations.

Mantram Repetition Program research. Between 2003 and 2014, seventeen Mantram Repetition Programs studies have been completed involving military veterans with PTSD as well as several other adult populations (Bormann, et al., 2014). For these studies the Mantram Repetition Program was originally five weeks long but was later lengthened to eight weekly sessions. One pilot study that explored the effect of MR on insomnia in a population of homeless women utilized a Mantram program consisting of two sessions given one week apart (Weinrich et al., 2016). The program has been delivered effectively to both individuals and groups of participants and in one study, telephone conference calls replaced face-to-face meetings for some of the sessions (Bormann et al., 2009).

Mantram repetition and QOL research. To date only a small number of studies have examined MR as an intervention for improving QOL. Previously, MR has been shown effective with such populations as Veterans (Bormann, Oman, Walker & Johnson, 2014), adults with HIV infections (Bormann & Carrico, 2009), caregivers of dementia sufferers (Bormann, Warren & Regalbuto 2009) and health care employees (Yong et al., 2011). In one study by Bormann et al. (2005), the effect size of MR on QOL scores in Veteran participants was large (η^2 =.36; p = .001). Another study looking at the effect of MR on QOL in adults with HIV results indicated a small to medium effect size (ηp^2 = .03 p =.04) (Bormann et al., 2006).

This investigator's current study was the first time that MR has been studied exclusively with low-income, urban dwelling older adults. Earlier studies using MR have demonstrated positive outcomes on posttraumatic stress disorder (PTSD) (Bormann, Thorp, Wetherell & Goshen, 2008) as well as depression and stress (Oman & Bormann, 2014). Mantram repetition has also been associated with increased mental health, spiritual well-being and mindfulness (Bormann, Smith & Becker, 2005).

While pervious MR interventional studies have not targeted older adult populations specifically, a number have included a sizable percentage of older adults within their sample. For example, Bormann, Thorp, Wetherell & Goshlan (2008) enrolled a sample of 29 Veterans with PTSD with a mean population of 56.1 years (SD 9.6). The results of this Bormann, et al (2008) study demonstrated a large effect size for increased QOL in participants who practiced MR. Another study by Bormann et al. (2009) enrolled family caregivers of Veterans with dementia and this sample (n=16) also included a large percentage of older adults with a mean age of 69.2 years (SD 10.35). Study results indicated a large effect size for increase in QOL enjoyment and satisfaction after instruction and practice of MR by participants. A third study by Bormann et al. (2005) included a sample (n=62) of Veterans with chronic illness and a mean age of 61.8 years (SD 13.2) (Bormann et al., 2005) indicated a large effect size of MR on QOL scores among Veteran participants.

Summary

This literature review provides a discussion regarding socioeconomic status, social support, engagement, housing status, psychiatric illness, health status and QOL in older adults. Rowe and Kahn's multidimensional model for successful aging implicates

three main important components to promote healthy aging: avoiding disease and disability, maintaining high cognitive, and physical function and active engagement with life. Rowe and Kahn's model, that incorporates physiological, psychological and sociological factors as essential components of successful aging, mirrors the factors identified in the literature as being associated with QOL in older adult populations. Despite the extensive research on QOL a paucity of literature exists pertaining to interventions designed at improving QOL. As the population continues to age, an emphasis on successful aging with possibly using alternative therapies to improve QOL is important in the realm of scientific research.

Literature Gap

A significant knowledge gap in the current literature demonstrates a lack of evidence regarding interventional strategies designed to improve QOL in the vulnerable subpopulation of low-income, urban dwelling older adults. As noted in the review of the literature on this topic, study populations are often limited to older adults with specific disease conditions. While study populations also include a variety of settings such as nursing homes, community centers and primary care clinics, exploration into the impact financial status among study participants is not noted. Given the associated negative implications that low socioeconomic status, lack of social support and engagement, unstable housing status, prevalence of psychiatric illness, and poor health status all have on QOL, as well as the complex multidimensional nature of QOL as a concept, the critical nature of addressing this topic is of considerable importance in the promotion of successful aging and the future of healthcare.

This current study tested an alternative therapy, mantram repetition, among older adults. This dissertation work had the possibility of forming the basis for larger scaled future research that would examine other potential positive implications for the use of Mantram repetition in larger samples of vulnerable older adults. The methods utilized for this study are discussed in the next chapter.

CHAPTER 3

METHODS

Low-income, urban dwelling older adults are challenged in a number of ways that may negatively impact their QOL. In recognizing the potential benefits of mindful-based practices, including meditation, on physical and emotional well-being as well as QOL, the overall purpose of this study examined the difference in QOL in low-income, urban dwelling older adults pre- and post- learning and practicing the MR technique. This chapter includes a description of the study design and methods that were used to conduct this pilot study. Specific topics include the design, setting, sample and participant recruitment, data collection and analysis, informed consent and intervention procedures.

Study Purpose and Specific Aims

The purpose of this study was to describe the effect of MR on QOL in a sample of low-income, urban dwelling older adults.

Specific aim #1

Describe select socio-demographics, frequency of MR practice and QOL among low-income, urban dwelling older adults.

Specific aim #2

Describe, among low-income, urban dwelling older adults, the difference in QOL between pre and post learning and practicing the MR technique for a duration of eight weeks.

Specific aim #3

Describe the relationship between select socio-demographics, frequency of MR practice and QOL among low-income, urban dwelling older adults who have been instructed in and are practicing the MR technique.

Specific aim #4

Determine the amount of variance accounted for in QOL by select socio-demographics and frequency of MR practice.

Study Design

This pilot study utilized a quasi-experimental, pre-post test research design employing convenience sampling methods. Due to time constraints limiting the sample size, this was proposed as a pilot study.

Methods

Setting

Recruitment and data collection for this pilot study was completed at a community wellness center for older adults located in the southern California. The wellness center's services are available to all community members over the age of sixty years, regardless of income level or other financial resources. Available services include: breakfast and lunch without cost, access to activity rooms with television, computers with internet access, games and educational offerings, social work and case management support, nurse consultation, individual and group counseling, assistance with legal and insurance related issues, as well as psychiatric and behavioral health support. The wellness center also offers several communal areas that are regularly utilized for wellness center group activities as well as staff meetings. One of these communal areas was utilized for MR instruction. Due to the nature of its location and

available services, 85% of the clientele accessing services at the wellness center have incomes at or below the Federal Poverty Level (M. Forstey, personal communication, September 20, 2016).

Participants

This study aimed to enroll a representative sample of low-income, urban dwelling older adults. The projected sample used for this study consisted of 30 older adults utilizing services at the wellness center between August 2017 and November 2017. The decision to complete a pilot study versus a feasibility study was based on previous participation attendance and sustained engagement for various other wellness center programs. Attendance data for potential participants that were accessed for this study was reviewed for the year 2016. Several programs related to mind and body wellness were recognized as having sustained attendance overtime. Notably, a yoga class began with an attendance of 40 and four months later still had 27 participants, a bi-weekly exercise class began with an attendance of 84 and four months later continued with 78 participants and a civic engagement group began with 58 participants and five months later 47 participants remained.

Inclusion criteria. Inclusion criteria consisted of participants over 59 years of age, agreeing to receive mantram repetition instruction, having the ability to speak and understand the English language and meeting requirements for cognitive capacity to consent for research. The Montreal Cognitive Assessment (MoCA) (Nasreddine et al., 2005) was administered to assess this cognitive status. Possible scores range from 0 to 30, with higher scores reflective of increased cognitive abilities such as memory and

executive function. A MoCA score of 26 or above was required to be eligible for participation to the study.

Recruitment

Participants were recruited exclusively from the wellness center through case managers, supportive staff, announcements made during dining room services by the primary investigator and flyers (Appendix A) posted within the facility and on an information table situated in the main common area. The main common area is a high client traffic area most often used by the clients who are waiting to enter the dining room, watching television or participating in a variety of group activities. Case managers and other supportive staff were provided information regarding the proposed research study as well as the flyer to distribute to potential participants. Contact information for the researcher was provided on the flyer. Participants were asked to contact the researcher by phone or email. When contacted, the researcher informed clients of the details of the research study, including that instruction in the MR technique was required and how to enroll in the study. Clients who agreed to participate in the study were screened by the principle investigator using the established inclusion criteria. Volunteers who did not meet the MoCA score requirement (n=0) were not included in the study and were referred for further evaluation by the wellness center's bachelor's level registered psychiatric nurse who followed the wellness center's standardized procedure.

Power, Effect, and Sample Size

Sample size for this study was be based on the specific aim that required the largest sample size. Therefore, sample sizes for each individual specific aim were calculated aprior to selection of the study's sample. After these calculations were

completed, the final desired sample size was based on specific Aim #2. The processes for determining the sample size for each specific aim are described below.

Sample size based on Aim #2. A 2-tailed, paired t-test was used to address aim #2 (compare measurements of QOL before and after MR technique instruction). An effect size of 0.3, significance level (α) of 0.05 and power of 0.8 were selected for the purpose of determining the desired sample size. According to Cohen (1988), an effect size can be small (.10), medium (.30) or large (.50). The effect size of 0.3 was selected based upon the concept that this magnitude of effectiveness of an intervention is perceptible by an observer (Cohen, 1988). A significance level (α) of 0.05 was selected as this value has become conventional (Cohen, 1992). It is assumed that there is an 80% of detecting an effect size of 0.3. Sample size was calculated utilizing a computer software program, G*Power 3.1.9.2 (1992–2014). After inputting the selected values for effect size, significance level and power, a minimum sample size of 90 participants was determined to be necessary to detect a difference in QOL between MR pre and post data.

Sample size based on Aim #3. Tests of association, including Pearson R and chi squared tests were used to address Study Aim #3. Again, a power analysis was used to determine the minimum sample size required to detect an effect given a predetermined degree of confidence. Identical parameters for effect size, significance level (α) and power to those that were selected for Study Aim #2, were used for the purpose of calculating this aim's required sample size. Sample size was again calculated using G*Power 3.1.9.2. After inputting the selected values for effect size, significance level and power, a minimum sample size of 84 participants was determined to be needed to

describe the relationship between select socio-demographics, frequency of MR practice and QOL.

Sample size based on Aim #4. Regression analysis was planned for use to address Study Aim #4. After the variables were known based upon the results from study Aim #3, a sample size of 36 was determined utilizing G*Power 3.1.9.2; however, due to the lack of association between bivariate variables, Study Aim #4 was not completed.

Limited availability of recruitment time made a sample size of 30 participants a realistic goal for this study. In total, 72 participants were recruited with 36 of these completing the 8-week intervention. Given the large difference between the computed minimum and calculated sample sizes, this study will be considered statistically underpowered and therefore is a pilot study.

Study Procedures

All study participants received instruction in the MR technique. The participants for this research study were comprised of a convenience sample of volunteers. The participants served as their own comparisons for the test of difference.

Intervention

For the purpose of this study, participants were instructed in three of the Eknath Easwaran points; mantram repetition, slowing down and 1-pointed attention.

Setting. The location for instruction was a private activity room on the first floor of the wellness center.

Instructor. Due to limitations on the number of individuals that could be feasibly instructed in the MR technique by an individual instructor, the MR instructor provided

three course times for the pilot study. Instruction was completed by the study's primary investigator.

Instruction Process. Mantram repetition instruction included one forty-minute group lecture. Content of the MR lecture included: basic description of the program, the origins of MR, potential benefits, how to choose a mantram, when to use the mantram and the mechanisms of MR (see Appendix B). During the lecture the synergistic techniques of slowing down and one-pointed focus were practiced and discussed.

After completion of the lecture, participants were asked to record whether or not they used MR each day and if used, how many times each day. This information was to be recorded on the participants' Mantram Repetition Log. In addition, participants were reminded that they would be asked to complete the WHOQOL-BREF, one, four and eight weeks after using the MR technique. In order to promote continued participant engagement, participants were contacted by phone or email and reminded to return weekly logs that were already completed at week 1, week 4 and week 8.

Intervention fidelity. Due to limitations on the number of individual participants that were instructed in MR at one time, a rolling recruitment process was used to assist study participants to self-select for one of three MR course times. Due to potential for high attrition rates, recruitment aimed to include more than 30 participants over the course of three MR instruction classes. While the study's MR teaching materials were standardized, in an effort to minimize the potential effect of extraneous information resulting from participant questions during lectures, questions posed by participants were recorded on the Mantram Repetition Instructor log. All activities involving the instruction and practice of MR were provided in group format.

Investigator developed meditation logs were completed by participants and reminders to complete the log accurately were provided over the 8-weeks by the investigator to promote fidelity of the intervention. At the time of data collection there was no plan to use the optional qualitative information on the logs for later analysis. The participants were oriented to the use of the MR logs, informed that qualitative information was optional, and that this additional information could be used if participants wished to communicate their experiences to the investigator.

The participant Mantram Repetition Log (see Appendix C) was designed to capture the number of times each participant meditated each day. Participants were asked to list the date, whether or not they meditated and the number of times they meditated each day. Space for supplementary notes regarding the qualitative experience of each meditation was included; however, participants were informed that providing this information was completely optional.

The Mantram Repetition Instructor Log (see Appendix D) was designed to capture additional lecture content for each individual meditation instruction session. The purpose of the log was to document information that might be helpful in the design of future studies. Therefore, this was no intent to analyze this qualitative data as part of this study. While MR instruction lecture materials were highly standardized, as routine teaching practice, individual learners were invited to ask questions regarding the technique and experiences they might have had during daily meditation sessions. The content and answers to these questions, without identifying information, were captured in the Instructor Log.

Data Collection

Pre-intervention survey packets were provided to each participant and included an investigator developed demographic survey (see Appendix E) and the QOL measure (WHOQOL-BREF) instrument. Post survey packets included the WHOQOL-BREF and Participant Meditation Log.

Demographic Survey

Age. This variable was calculated by subtracting the current data from each participant's date of birth on the demographic questionnaire.

Gender. Response options for gender included the following categories: male, female or other as reported on the demographic questionnaire.

Monthly income. This variable was operationalized by asking the participant to total the amount for any and all sources of income that they receive regularly on a monthly basis. An additional optional check box "decline to answer" was provided.

Previous meditation experience. This variable was operationalized by asking each participant to indicate whether they had previously practiced a form of meditation with a 'yes' or a 'no' response option. Meditation was defined as a practice in which an individual trains the mind or induces a mode of consciousness to realize some benefit for the mind.

Housing status. Response options included: owns home, rents an apartment, living in a single room occupancy hotel, living in a shelter, living with family/friend(s), homeless (living on the streets, in a car/van/camper).

Living situation. Response options included: lives alone, lives with family member(s), lives with friend(s) and other.

Psychiatric illness. Respondents were asked to indicate if they had ever been diagnosed with a psychiatric/behavioral health illness. Response options include: yes or no. Participants who responded 'yes', were asked to fill-in a diagnosis/diagnoses.

Perceived health status. This variable was operationalized by asking each participant to indicate their perception of their current health status. Options included: excellent, very good, good, fair and poor (Ware & Sherbourne, 1992).

Quality of Life Survey

The WHOQOL-BREF is a 26-item, self-report inventory that has been tested in a wide variety of populations to measure QOL. The WHOQOL-BREF was derived from the original WHOQOL-100 as a shorter, condensed version created for more practical use in clinical trials. Both WHOQOL instruments assess QOL within four domains: physical health, psychological health, social relationships and environment. The WHOQOL-BREF 26 items include one item from each of the original 24 facets of the WHOQOL-100 as well as two general questions regarding perceived QOL and overall health. Items were selected by the developers for the WHOQOL-BREF based on their discriminant validity and ability to explain a substantial proportion of QOL variance as corresponding to original WHOQOL-100 instrument variance (Skevington, Lofty & Connell, 2004). Notably, the WHOQOL-BREF assessments permit centers to include national-specific items that are thought to be important in assessing QOL in unique populations. This design permits the WHOQOL assessments to yield data sensitive to unique test settings (WHO, 1996). Due to the desire to limit respondent burden and the time constraints associated with the statistical analysis of additional questions, national-specific items were not included in this study. Permission to use the WHOQOL-BREF for this study

was obtained online through the US WHOQOL center located at the Seattle Quality of Life Group (SeaQoL).

The WHOQOL-BREF is a self-administered survey but may be interview-assisted or interview-administered. If not used as a self-administered survey, standardized instructions are provided and should be read to the individual by a trained interviewer. The WHOQOL-BREF utilizes four different types of 5-point Likert interval scales. Scores for the WHOQOL-BREF are obtained as individual scores for questions 1 and 2 and four mean QOL domain scores are calculated for each individual. Higher scores indicate higher levels of QOL. Repeating the measure beyond two weeks is not recommended when there is concern about the reliability of the instrument; although alteration of this timing is acceptable given different varying participant characteristics or cultural settings. For example, when assessing participants with chronic medical conditions such as arthritis, extending the time frame from two to four weeks may be more conducive to data collection. When scoring individual tests, those missing 20% or more of the item responses are not to be scored and considered missing data (WHOQOL Group, 1998).

Reliability. The WHOQOL-BREF was evaluated for internal consistency using a group of hospitalized adults (Yao, Chung & Wang, 2002). Cronbach's α was 0.70 to 0.77 at the domain level and 0.91 for the entire questionnaire. The test-retest reliability (Pearson's correlation) coefficients were 0.41 to 0.79 at the item/facet level and 0.76 to 0.80 at the domain level (all $p < 0.01$).

Intra-rater reliability was reported as excellent for the overall instrument as well as its subscales [Intra-class Correlation Coefficient (ICC) range: 0.84-0.93]. Inter-rater

reliability has also been demonstrated to be adequate to excellent for the total WHOQOL-BREF and its subscales (ICC range: 0.56-0.95).

Validity. For the WHOQOL-BREF, content validity was demonstrated with evidence for both convergent and discriminant validity in a large sample of participants representing twenty-seven disease groups or health conditions and healthy people across a wide range of settings (Skevington, 2011). Adequate convergent and discriminant validity (r =0.47–0.82, p <0.001) of the WHOQOL-BREF was demonstrated among a sample of older adults (mean age 68.6 years) following joint replacement (Snell et al, 2015). Convergent and discriminant validity for the WHOQOL-BREF for the use in the older adult populations was likewise shown by the work of Lucas-Carrasco, Laidlaw & Power (2011). In their study of Spanish older adults (n=286), correlations between the WHOQOL-BREF domains and corresponding physical (PCS-12) and psychological (MCS-12) domains of the Short Form Health Survey (SF-12) were large (r>0.50). To support discriminant validity, WHOQOL-BREF domain scores and WHOQOL-OLD scores were compared across several sociodemographic variables: gender, age (60-79 and 80+) and education level (primary and secondary school and higher than secondary school). QOL scores were shown to be slightly higher in males versus females, those 60-79 versus 80+ years of age, and those with an education higher than secondary school. Results were only significant for education (p<0.01).

Sensitivity to detect change. While the number of interventional studies regarding QOL in older adults are relatively scant, several studies were reviewed to determine the feasibility of obtaining an outcome of increased in QOL.

In an interventional study utilizing occupational therapy to improve QOL in a population of 77 community dwelling older adults, Kumer et al. (2013) reported that overall QOL (WHOQOL-BREF) improved significantly in the experimental group ($p < 0.001$). At baseline the mean experimental group's overall QOL score was 66.78(SD = 3.68) and post intervention the mean QOL score increased to 71.36 (SD= 4.66).

Lin et al. (2007) conducted a study analyzing the impact of three separate interventions to improve QOL (WHOQOL-BREF) in older adults. Participants in this study included 150 community dwelling older adults who were block randomized into one of three groups: education (ED), home safe assessment and modification (HSAM) and exercise training (ET). For the ED group, scores on physical domain increased significantly (baseline M= 48.9, SD =17.3, post-intervention M =55.5, SD = 15.3, $p < .05$). For the ET group all four domains increased significantly (baseline physical domain M = 51.0, SD =17.9, post-intervention M = 62.8, SD = 9.9, baseline psychological domain M = 55.2, SD =13.6, post-intervention M = 64.4, SD = 12.6, baseline social domain M = 69.9, SD = 11.4, post-intervention M = 75.4, SD = 9.4, and baseline environmental domain M = 64.1, SD = 12.5, post-intervention M = 74.9, SD = 6.8, all $p<.01$). For HSAM group the physical domain (baseline M = 52.6, SD = 15.1, post-interventions M = 60.9, SD = 14.5) and environmental domain (baseline M = 65.8, SD = 10.5, post-intervention M = 70.2, SD = 9.6) increased significantly ($p < 0.01$).

While the projected population for this pilot study was determined to be relatively small, given that significant variance was noted among QOL scores among these interventional studies, it is hypothesized that detecting an improvement in QOL scores post-instruction in the MR technique was plausible.

Data Analysis Plan

Study data were entered into and analyzed using The Statistical Package for Social Sciences (SPSS) program, version 24.

Specific aim #1

Study aim #1 described select socio-demographics, frequency of MR practice and QOL among low-income, urban dwelling older adults. To address study aim #1 description statistics such as means, standard deviations, percentages and histograms were used.

Specific aim #2

Study aim #2 described the difference in QOL between both pre and post learning and practicing the MR technique for a duration of eight weeks. To address study aim #2, 2-tailed paired t-test were used to compare QOL between pre and post intervention times.

Specific aim #3

Study aim #3 described the relationship between select socio-demographics, frequency of MR practice and QOL in a group of low-income, urban dwelling older adults. To address study aim #3 tests of association such as Pearson's r and Chi Square Statistics were used.

Specific aim # 4

Study aim #4 determined the amount of variance accounted for in quality of life by selected socio-demographic and frequency of MR practice. To address study aim #4, regression analysis was to be used. However, due to the lack of association between bivariate variables, Study Aim #4 was not completed.

Protection of Human Subjects

Study oversight was provided by the Institutional Review Board of the University of San Diego (Appendix F). Eligible participants who chose to enroll were asked to sign informed consents forms describing the purpose of the study, expectations of participants, risk, confidentiality, primary investigator contact information and complete study packets of surveys. Research ID numbers were assigned to each participant to preserve confidentiality and recorded on the data collection materials. All surveys were stored in a locked filing cabinet in the PI's locked office and stored separately from the consents. Electronic data were entered using assigned research ID numbers so that no personally identifiable information was stored. The computer used for the study was password protected.

Limitations

The proposed pilot study had several potential limitations related to study design, potential impact factor and data collection issues.

Self-reported data. Participant data are self-reported which could potentially impact the validity of the responses and the information collected. To promote a high degree of accuracy of the participants were instructed to complete the surveys and logs as accurately as possible.

Generalizability. The generalizability of this proposed study was limited by the narrowed specificity of sample's socioeconomic status. Specifically, study participants' socioeconomic status is that they consistently live on an income under the federal poverty line. Therefore, potential findings for this study would likely only be generalizable to a similar population of low-income, urban dwelling older adults.

Statistical limitations. Clearly the power of any results determined after data analysis is affected by limitations in small sample size. Convenience sampling and participant self-selection may have also contributed to biasing of the results as participants self-selected to be in this study.

Summary

The purpose of this proposed pilot study was to describe the relationship between MR and QOL in a population of low-income, urban-dwelling older adults. This chapter explored the methodology for this proposed pilot study including: descriptions of the setting, participants, recruitment, and rationale for sample size. The dependent and independent variables were defined. Inclusion and exclusion criteria were explained as were the data collection and data analysis procedures. Lastly, there was a discussion addressing the protection of human subjects and study limitations. Results of the analysis will be discussed in Chapter four.

CHAPTER 4

STUDY RESULTS

The purpose of this study was to investigate the effect of mantram repetition on quality of life in low-income, urban dwelling older adults. In this chapter, the study results will be presented, including sample characteristics. The description profile of participants will be presented and the results for each research aim will be explained.

Study aims included: among low-income, urban dwelling older adults, 1) describe select socio-demographics, frequency of MR practice, and QOL, 2) describe the difference in QOL between pre and post learning and practicing the MR technique for a duration of eight weeks, 3) describe the relationship between select socio-demographics, frequency of MR practice and QOL among participants who have been instructed in and are practicing the MR technique and 4) determine the amount of variance accounted for in QOL by select socio-demographics and frequency of MR practice.

Data collection included the WHOQOL-BREF, as well as the primary investigator (PI)-developed survey of select demographics (age, gender, history of psychiatric illness, history of meditation experience, monthly income and housing status) and participant MR log. The data for this study were collected by the PI from a community wellness center for older adults located in southern California from September 15th, 2017 to December 7th, 2017. The Statistical Package for Social Sciences (SPSS) program, version 24, was utilized to complete the statistical analysis.

Descriptive Findings

Study aim #1: describe select socio-demographics, frequency of MR practice and QOL among low-income, urban dwelling older adults. Descriptive statistics were computed to describe these variables and included histograms, frequencies and

percentages for categorical data and means, standard deviations and ranges for continuous data.

Participant Socio-Demographics

Of the 72 participants who began the study, 36 continued their participation throughout the entire 8-week program. The attrition rate for this study was 50.0%. A high attrition rate was anticipated prior to initiation of the study and for this reason participation recruitment efforts sought to maximize recruitment numbers in hopes of retaining at least 30 participants to complete the study.

Total sample. As shown in Table 1, the convenience, self-selected sample was comprised of 72 older adults. Of the participants who began the study (n= 72), ages ranged from 62 to 92 years, with a mean age of 72.5 years (SD= 7.1). For the variable gender, 63.1% of the participants identified as female (n=46), 27.8% male (n=20) and 8.3% (n=6) did not respond. Mean monthly income was $1,090.74 (n=52, SD=$665.86). For housing status, the majority of the participants (70.8%, n=51) reported that they are currently renting an apartment. For variable psychiatric illness, 26.4% (n=19) reported having been previously diagnosed with one or more psychiatric illnesses. Regarding previous meditation experience, 26.4% (n=19) of participants reported they had learned some form of meditation in the past.

Completers. The mean age for the participants who completed the 8-week program (n= 36) was 71.5 years (SD= 6.4). For variable gender, 64.7% of the participants identified as female (n=22), 35.3% male (n=12). Mean monthly income was $1,122.47 (n=31, SD=$514.78). For housing status, the majority of the participants (80.6%, n=29) reported that they are currently renting an apartment. Regarding

psychiatric illness, 25.0% (n=9) reported having been previously diagnosed with one or more psychiatric illnesses. Regarding previous meditation experience, 30.0% (n=10) of participants reported they had learned some form of meditation in the past.

Non-completers. The mean age for the participants that did not complete the 8-week program (n= 36), was 73.7 years (SD= 7.8). For variable gender, 75.0% of the participants identified as female (n=24), 25.0% male (n=8). Mean monthly income was $1,043.90 (n=21, SD=$853.96). For housing status, the majority of the participants (80.6%, n=29) reported that they are currently renting an apartment. Regarding psychiatric illness, 27.8% (n=10) reported having been previously diagnosed with one or more psychiatric illnesses. Regarding previous meditation experience, 27.8% (n=10) of participants reported they had learned some form of meditation in the past.

Comparison of completers to non-completers. Participants who completed the 8-week program were compared to those who did not. Chi-squared analysis was utilized for categorical variables (History of psychiatric illness, History of meditation experience and housing status) and one-way analysis of variance (ANOVA) for continuous variables (Age and Monthly Income). Statistical comparison of demographics for participants who completed the 8-week program versus those who did not indicated no significant difference between groups ($p < .05$). The results are summarized in Table 1.

Table 1. Demographic Characteristics by Group at Baselines (N=72)

Variable (Range)	Completed program *(n =36) x SD*	Did not complete *(n = 36) x SD*	Both *(N=72) x SD*	*p*
Age (62-92)	71.5 (6.44)	73.7 (7.77)	72.53 (7.10)	.30
Monthly income ($0-$4,000)	$1122.47 ($514.78)	$1043.90 ($853.96)	$1090.74 ($665.86)	.68
	n(%)	*n(%)*	*n(%)*	*p*
Gender				
Male	12	8	20	.36
Female	22	24	46	
History of psychiatric illness				
Yes	9	10	19	.50
No	26	20	46	
History of meditation experience				
Yes	10	9	19	.98
No	23	26	49	
Housing status				
Owns home	1	2	3	.32
Renting an apartment	29	22	51	
Living in SRO	3	3	6	
Living in shelter	0	1	1	
With friends/family	1	4	5	
Homeless	2	0	2	

Frequency of Mantram Repetition Practice

Due to the impracticality of tracking individual repetitions of their mantram, participants were asked to record the number of times they initiated their mantram each day. The participants were instructed to record this information on their weekly MR Log. For each day, participants were asked to record whether they used their mantram (yes or no) and if MR was used, to indicate the numbers of times the mantram was initiated throughout the day. At the conclusion of the 8-week study, participants who completed the study were asked to submit their logs to the PI. For the purpose of statistical analysis, MR frequency was calculated as the total number of times that participants initiated their mantram each week. The decision to utilize weekly totals was based on the relatively consistent number of times that participants practiced each week.

It should be noted that some participants failed to use MR some or most of the days. For example, by week 8, nine of the participants used their mantram on average once a day and five of these participants did not use MR at all. Five outliers were also identified using the Outlier Labeling Rule with SPSS for week 1 (Hoaglin, Iglewicz & Tukey, 1986). Similar results were calculated for week 8. Given that statistically small sample sizes increase the likelihood of identifying outliers and it was believed that the outliers were not due to measurement error, the decision was made to retain the outliers for statistical analysis (Meghani, Byun & Chittams, 2014).

Mean scores for weekly MR ranged from 204.0 to 276.3 (SD 847.7 to 1448.9). The median values of MR for week 1 and week 8 were 21 (IQR = 29.5 – 14.0) and 17 (IQR = 42.0 -7.0), respectively. The large difference between mean and medians values can be attributed to the participants whose weekly MR were identified as outliers as described previously. The range in MR frequency among participants is presumed to be a function of participants' interpretation of the appropriate use and accurate measurement recording of MR over time.

The decision to utilize the mean score of weekly MR was made after Chi-squared analysis demonstrated that the mean weekly MR scores for week 1 (n = 37) and week 8 (n = 33) demonstrated high correlation (r = .945, p <.001). This high correlation between mean weekly MR scores indicates that participant use of MR remained consistent over the 8-weeks period of the study, therefore providing rationale for the decision to utilize mean mantram repetition scores from week 1 only.

WHOQOL-BREF and QOL Domain Scores

Study participants were asked to complete the WHOQOL-BREF prior to instruction in the MR technique and one, four and eight weeks after learning. For the purpose of statistical analysis, the four mean QOL scores (physical health, psychological, social relationships and environmental QOL) from pre-MR instruction and eight weeks after MR instruction were used. Instructions for checking and cleaning data and computing domain scores was completed using WHO guidelines.

QOL domain scores collected prior to MR instruction (Pre-test) and 8-weeks (Post-test) following the intervention are summarized in Table 2. Scores have a possible range of 4 to 20. Pre to post group differences between QOL domain scores are discussed in the Study aim #2 section below.

Table 2. QOL domain scores pre and 8-week post Mantram Repetition instruction.

	Domain Scores					
	Pre-test			**Post-test (8 week)**		
QOL Domain	**Mean (SD)**	**Range**	**n**	**Mean (SD)**	**Range**	**n**
Physical Health	14.04 (2.98)	5.71-20.00	36	14.43 (2.83)	6.86-19.43	36
Psychological	14.81 (2.71)	7.33-19.33	36	15.28 (2.42)	10.00-19.33	36
Social Relationships	14.36 (4.41)	4.00-20.00	35	14.53 (3.67)	4.00-20.00	35
Environment	14.54 (2.73)	5.00-20.00	36	14.72 (2.86)	7.50-20.00	36

Reliability. Reliability statistics were calculated with SPSS for pre and post-WHOQOL-BREF domain scores. Reliability scores for all QOL domain subscales were found to be in the range of acceptable to good ($\alpha > 0.7$). Pre-test Cronbach's alphas were as follows: the physical health subscale consisted of 7 items ($\alpha = .84$), psychological

subscale consisted of 6 items (α = .86), social relationship subscale consists of 3 items (α = .82) and the environmental subscale consisted of 8 items (α = .87). After the 8-week intervention Cronbach alphas were as follows: physical health subscale (α = .84), psychological subscale (α = .84), social relationship subscale (α = .79) and environmental subscale (α = .82).

Intervention Effect upon QOL

To address study aim #2, group differences between mean scores were computed.

Study aim #2. Describe, among low-income, urban dwelling older adults, the difference in QOL between pre and post learning and practicing the MR technique for a duration of eight weeks. Results are presented in Table 3. Paired t-tests was used to compare the mean QOL score for each of the four domains (physical health, psychological, social and environment) prior to and 8 weeks after initiation of MR instruction. There was an increase in all four mean domain scores from pre-test to completion of the 8-week program; however, these outcomes did not represent statistically significant differences.

Table 3. T-test results for QOL domain scores pre and 8-week post Mantram Repetition instruction.

	Domain Scores				
QOL Domain	**Pre-test** Mean (SD)	**8-week** Mean (SD)	***t*-value**	***df***	***p* value**
Physical Health	14.04 (2.98)	14.43 (2.83)	-1.24	35	.223
Psychological	14.81 (2.71)	15.28 (2.42)	-1.37	35	.179
Social Relationships	14.36 (4.41)	14.53 (3.67)	-.33	34	.747
Environment	14.54 (2.73)	14.72 (2.86)	-.56	35	.577

Associations among Variables

Study aims #3 and #4 were to determine if there was a relationship between the QOL domain scores and the independent variables (age, income, gender, history of psychiatric illness, history of meditation experience and housing status). Tests of correlation and regression analysis were planned for use for aim #3 and #4, respectively.

Study aim #3. Describe the relationship between select socio-demographics, frequency of MR practice and QOL among low-income, urban dwelling older adults who have been instructed in and are practicing the MR technique. Tests of association (Pearson's r, Chi square and Eta statistics) were used for this aim. These calculations were only completed for week 8 data.

Pearson's r was computed to describe the relationship between the continuous the independent variables of age, monthly income, frequency of MR and the four QOL domain scores (dependent variables). Considering age first, there were non-significant correlations between the independent variable of age and the four QOL domains variables: Physical Health domain: r =.12 (p = .50), Psychological domain: r = .03 (p = .87), Social Relationships domain: r = .10 (p = .56) and Environmental domain: r = .07 (p = .71). Similar results were found between the independent variable monthly income and three of the four domain scores: Physical Health domain: r = -.08 (p = .69), Social Relationship domain: r = -.04 (p = .84) and Environmental domain: r = .17 (p = .39). The variable of income and the Psychological QOL domain did indicate a weak, yet significant correlation of -.39 (p = .03). The relationship between MR frequency and the four QOL domain scores were non-significant: Physical Health domain: r =.07 (p = .69),

Psychological domain: r =.10 (p = .57), Social Relationships domain: r = -.113 (p = .53) and Environmental domain: r =.11 (p = .54).

Eta Statistics were used to describe the relationship between the categorical independent variables of gender, history of psychiatric illness, history of meditation experience, housing status and the four QOL domain scores. A one-way between subjects ANOVA was run to obtain p-values. Results indicated there was a non-significant correlation between the Physical Health QOL domain and gender: $F(1,32)$ = .00, p = .99 (η^2 =.002), history of psychiatric illness: $F(1, 33)$ .089, p = .77 (η^2 =.05), history of meditation experience: $F(1,34)$ 1.28, p = .27 (η^2 =.19) and housing status: $F(4,31)$ .32, p = .86 (η^2 =.20). The Social Relationships QOL domain also failed to demonstrate significant correlation: gender: $F(1,31)$ 1.96, p = .17 (η^2 =.24), history of psychiatric illness: r = $F(1,32)$ .67, p = .42 (η^2 =.14), history of meditation experience: $F(1,33)$ .03, p = .87 (η^2 =.03) and housing status: $F(4,30)$ .33, p = .21(η^2 =.21). Similar results between the Environmental QOL domain and gender: $F(1,31)$ .380, p = .54 (η^2 =.11) history of psychiatric illness: $F(1,32)$ .39, p = .54 (η^2 =.11), history of meditation experience: $F(1,33)$ .38, p = .54) (η^2 =.11) and housing status: $F(4,30)$ .21, p = .93(η^2 =.17) . The Psychological QOL domain failed to demonstrate significant correlation with gender: $F(1,31)$ 1.95, p = .17 (η^2 =.24), history of meditation experience: $F(1,33)$ .01, p = .92) (η^2 =.02) and housing status: $F(4,30)$ .89, p = .48 (η^2 =.33). The Psychological QOL domain was the only domain score that exhibited a significant correlation to one of the categorical independent variables. This relationship was with the variable history of psychiatric illness: $F(1,32)$ 21.38 p = .034 (η^2 =.36).

Study aim #4. Determine the amount of variance accounted for in post-test (8 weeks) QOL by select socio-demographics (age, income, gender, history of psychiatric illness, history of meditation experience, pre-test QOL domain scores) and frequency of MR practice. Due to the results of study aim #3, indicating lack of association in the bivariate analysis, study aim #4 could not be accomplished.

Summary

The results presented in this chapter included a descriptive profile analysis of the sample population and results of the research aims. Discussion of study results and study implications will be presented in Chapter 5.

CHAPTER 5

DISCUSSION OF FINDINGS

The purpose of this study was to investigate the effect of mantram repetition on quality of life in low-income, urban dwelling older adults. Prior research had demonstrated that low-income, urban dwelling older adults are more likely to report lower QOL due to characteristics frequently associated with this population (Bielderman, de Greef, Krijnen & van der Schans, 2015).

While a significant amount of literature has been dedicated to the research on QOL in various populations, the purpose of this study was to address a gap in knowledge regarding interventions to improve quality of life. Additionally, this study 1) described the sample population used in the study, 2) described the difference in QOL of low-income urban dwelling older adults prior to and eight weeks after learning and practicing the MR technique, 3), described the relationship between select-sociodemographic indicators, MR frequency and QOL and lastly, 4) determined the amount of variance in QOL for in post-test (8 weeks) QOL by select socio-demographics (age, income, gender, history of psychiatric illness), history of meditation experience, pre-test QOL domain scores and frequency of MR practice. To explore these aims, a pilot study was conducted enrolling participants accessing services at a wellness center for older adults located in Southern California. Data collected for this study were analyzed to determine if there were any relationships between the independent variables (age, gender, history of psychiatric illness, history of meditation experience, monthly income, housing status, MR frequency) and the dependent variable (QOL domain scores). This chapter will present a

summary of findings, limitations and implications for nursing practice and recommendations for future research.

Summary of Findings

Summary of findings will include a discussion of sample characteristics, mantram repetition frequency and relationships between the study variables.

Sample Characteristics

Age and gender for the study sample population were consistent with other populations of older adults (U.S. Census Bureau, 2010). In addition, financially, they met the criteria of low-income, being less than 200% of the Federally Poverty Level ($1,005.00/month), the majority (80.6%, n=29) reported currently renting an apartment (2.8% owned their home). Twenty-five percent (25%) (n=9) reported one or more psychiatric illnesses, consistent with estimates from the American Association of Geriatric Psychiatry (2008). Thirty percent (30%) (n=10) reported experience with meditation in the past. There was no significant different in demographics between participants that completed the eight-week program and those that did not.

Mantram Repetition Practice

Mantram repetition, part of an 8-point program introduced from India by Eknath Easwaran to redirect thoughts, improve concentration and regulate emotions (Easwaran, 2008) was utilized for this study. Easwaran's program was designed to provide a simple, portable and practical skill for managing a variety of health-related symptoms. The basis of the MR technique is instructing the repetition of a simple word of phrase (mantram), silently, any time day or night to redirect the mind to assist in the dissipation of negative feelings and emotions. Mantram repetition is a technique that is cost-effective,

personalized, portable strategy for reducing stress and improving well-being (Bormann, Thorp, Wetherell & Goshan, 2008).

Mantram repetition frequency was self-reported by study participants using their weekly MR log. Due to the impracticality of tracking individual repetitions of their mantram, participants were asked to record the number of times they initiated their mantram each day. For the purpose of statistical analysis, MR frequency was calculated as the total number of times that participants initiated their mantram each week. The decision to utilize weekly totals was based on the relatively consistent number of times that participants practiced each week. Mean scores for weekly MR totals ranged from 204.0 to 276.3 (SD 847.7 to 1448.9). The median values of MR for week 1 and week 8 were 21 (IQR = 29.5 – 14.0) and 17 (IQR = 42.0 -7.0), respectively. The large difference between mean and medians values can be attributed to the participants whose weekly MR were identified as outliers by using the Outlier Labeling Rule with SPSS (Hoaglin, Iglewicz & Tukey, 1986). While each participant remained consistent in the number of times they meditated per week, number of MR varied greatly among participants. The range in MR frequency among participants is presumed to be a function of participants' interpretation of the appropriate use, accurate measurement recording of MR during MR instruction period and individual motivation levels over the course of time.

Quality of Life

QOL and the intervention. This study described the difference in self-reported QOL domain scores (physical health, psychological, social relationships and environmental) among low-income, urban dwelling older adults pre and post learning and practicing the MR technique for a duration of eight weeks. Results indicated that while

all four mean QOL domain scores increased after completion of the 8-week program, these results were not statistically significant. These findings were not consistent with the results of previous studies on MR and QOL. As noted in Chapter 2, MR has been shown effective with other populations of adults such as Veterans (Bormann, Oman, Walker & Johnson, 2014), adults with HIV infections (Bormann & Carrico, 2009), caregivers of dementia sufferers (Bormann et al., 2009) and health care employees (Yong et al., 2011). One explanation for the lack of significant increase in QOL includes the relatively high reported QOL among participants prior to the MR instruction. Another possible explanatory factor is the number of times study participants met to learn the Mantram Repetition Program compared with other MR studies. Other considerations include small sample size for the t-test calculation as well as the difficult nature of measuring QOL as a concept as well as measuring changes in QOL scores over time (Logsdon, Gibbons, McCurry, & Teri, 2002). It should be noted that in a meta-analysis of meditation studies, four studies that assessed self-reported QOL post-intervention indicated that changes in QOL scores for meditation groups versus control groups were positive but not statistically significant (Hilton et al., 2016).

Contributions to QOL scores. First, tests of association were used to describe the relationships between select socio-demographics, frequency of MR practice and QOL domains among low-income, urban dwelling older adults who have been instructed in and are practicing the MR technique. Only one QOL domain, the Psychological QOL Domain, was related to any other study variables.

Monthly income (r=-.39, p=.03) as well as history of psychiatric illness (η^2 =.36, p=.03) were both associated with Psychological QOL domain scores. The association

between the monthly income and the Psychological QOL domain informs us that for this sample, as monthly income increased, the Psychological QOL domain scores decreased. This was unexpected as previous studies had demonstrated lower income as negatively impacting QOL in older adults (St John, Montgomert, & Tyas, 2013). Of note, monthly income may not accurately measure economic burden. For example, in this study population, subsidized housing may have moderated their QOL resulting in higher than expected scores. However, the presence or lack thereof, of subsidized housing was not measured in this study. It is also known that social relationships have acted as a buffer against negative socioeconomic variables (Klijs, Mendes, de Leon, Kibele & Smidt, 2017). Future studies on QOL in low-income older adults might further explore the effect of social relationships on perceived QOL. The association between the history of psychiatric illness and the Psychological QOL domain informs us that for this sample, a history of psychiatric illness has a large effect size in relationship to Psychological QOL Domain scores. No other variables were related to the Psychological QOL domain scores.

In addition, it should be noted specifically that mantram repetition practice was not associated with any of the QOL domains. QOL is recognized as a difficult variable to measure for several reasons. For example, QOL is not directly observable, there is no gold-standard of measurement and evaluation of QOL is susceptible to several sources of bias (Blome & Augustin, 2015). One such source of bias is term response shift, which implies that QOL assessment can change although no change in objective circumstances has occurred. Another source of bias is social desirability which will be discussed later in this chapter.

Next, it was planned to conduct separate regression analyses to model which independent variables (age, gender, monthly income, history of meditation experience and history of psychiatric illness) contributed a significant amount of variance in each of the dependent variables (QOL domain scores). However due to the limited significant findings in the bivariate analyses of the independent variables and the QOL domain scores, null results were anticipated for the regression analyses. Therefore, study aim #4 was not accomplished.

Study Limitations

This section will discuss the use of self-reported data, sample bias, generalizability of the results and sample size. All four of these represent limitations to this research study.

First, self-reported data were collected for this study through the use of the demographic questionnaire, WHOQOL-BREF and MR participant logs. While the use of self-reported data may decrease reliability of the questionnaire and validity of the data it produced, it is understood that certain outcomes can be assessed more quickly and economically using this method (Gonyea, 2005). However, related to self-report bias, the MR logs may have caused difficulty for some participants, as keeping track of exact numbers of number of times the mantram was repeated throughout the day could create a challenge for maintaining accuracy. Lastly, one should consider also bias in terms of social desirability, as the participants may have followed the tendency to provide answers to the questionnaires based on what they believed would please the investigator (Paulhus, 1991).

Second, sampling bias may have been another potential limitation of this study. A convenience sample was used for this study. Individuals who volunteered may have felt more inclined and open to the use of meditative techniques and therefore may have been more likely to participate in the study compared to individuals who did not and would consequently been more likely to interpret positive results from the intervention.

A third example of a potential study limitation may have been that of impact validity related to the generalizability of the results to older adults (Massey, 2013). The sample population for this study was taken from an individual day center for older adults. Consequently, due to the unique characteristics of this sample location, research findings from this study may not be generalizable to other populations outside of low-income older adults attending a day care center.

A finally limitation for this study was potentially the sample size. As discussed in Chapter 3, this study was greatly underpowered. The sample size was small and advanced analyses were limited by the small sample size.

Study Implications

Quality of life is an important concept of increasing significance for all of healthcare. The aging population of the United States and assumptions of decreased QOL have led to increasing research in the area of QOL. Due to the lack of evidence-based interventions to improve QOL this study was undertaken. As a result, this study has some interesting implications for practice, research and even systems of care. These implications will be discussed below.

Future Practice

As previously noted, participants in this study reported relatively high QOL prior to MR instruction. This is an important finding. These older adult participants already had high QOL domain scores. These results were not unlike the findings of Khaje-Bishak, Payahoo, Pourghasem and Jafarabadi (2014) who noted in their cross-sectional study that older adult participants overall reported acceptable levels of QOL. The authors also noted that policies and programs in place to promote QOL and decrease burden of disease are effective in maintaining satisfactory QOL levels over time. Given the evidence, health care professions should be working to help older adults maintain their physical health and wellbeing as well as monitoring for signs of depression, dependence in ADLs and social isolation which negatively impact QOL (Paskulin, Vianna & Molzahn, 2009).

Implications for Future Research

This study provides some insight into the research agenda concerning interventions to improve QOL in low-income older adults. While the results of this study did not demonstrate significant changes in QOL, next steps might be to measure MR on stress, anxiety and depression in older adult populations. There is also need for further exploration into how various modifications on MR programs may improve self-reported QOL. Previous studies where MR practice improved a number of health and wellness measures utilized five to 10-week MR programs. Longitudinal studies are need to understand the longer term effects of MR as well as methods encouraging older adults to incorporate MR into their lives on an ongoing routine basis. These programs also included weekly teaching sessions lasting 60-90 minutes and incorporated handbooks,

manuals and homework (Bormann, Becker & Smith al., 2005; Bormann et al., 2006). Also, of note, class sizes for previous studies had been limited to 22 participants and in some instances included more than one instructor. In this study, while it was hoped that by decreasing the length of instruction time and number of classes might improve the recruitment and retention of participants, it is possible that there was insufficient time to reiterate key portions of the MR program or allow sufficient time for participant questions and discussion. Review of the extraneous participant questions that were recorded on the MR instructor logs provides some anecdotal evidence for this idea. Questions posed by participants reflected information provided during the course of the standardized instruction process, thus leading the investigator to believe that participants were unable to focus with excessive numbers of students in the classroom and the reiteration of material may have been beneficial. There is a need for further exploration regarding the optimal length of time for MR programs, amount of repetition of MR programs, as well the number of participants per class and instructor. Additionally, this study should be replicated with an adequate sample size.

Anecdotally, clients who were instructed in the MR technique and continued to use the technique over time past the end of the study shared with the investigator improvements in their ability to handle stressful situations and feel a great sense of peace. This anecdotal information was ascertained from the qualitative information provided by participants on their weekly MR. Given these informal reports, either a qualitative analysis of MR or a quantitative study using a stress measure may be in order.

System Level Implications

Promotion and maintenance of QOL of older adults can be addressed at a larger systems level. Organizations such as the Robert Wood Foundation have supported ongoing programs to promote ageing well for older adults. Many of these programs are aimed at addressing the mental and physical health needs of older adults in long-term care and independent living environments. One example of such a program was created by the Northwest Colorado Visiting Nurse Association. By incorporating fitness classes, healthy congregate meals, educational classes, community presentations and other sources of social interaction and community engagement, a majority of participants in the program reported improved health status, increased ability to perform activities they enjoyed and decreased pain (Crum, 2013). Given the complexity of the factors that affect QOL in older adults, this multi-faceted approach including the use of MR may be best suited by programs that include a variety of elements that address different aspects of QOL. Without the support of larger organizations to provide funding and other resources, large scale programs to support the QOL of older adults may not be able to proliferate.

Summary

The purpose of this study was to investigate the effects of MR on QOL in a sample of low-income, urban dwelling older adults. The MR technique was instructed to a self-selected sample of 72 low-income older adults attending a day center for older adults in an urban setting. Data collection included demographic questionnaires, MR logs and the WHOQOL-BREF. Results from the statistical analysis indicated there was not a significant increase in QOL over the course of the 8-week intervention period and

that MR frequency did not contribute a significant amount of variance to post-intervention QOL domain scores. Possible reasons for these results could include using a condensed version of the MR intervention as well as providing only a limited amount of follow up instruction to the participants. Although previous MR interventions have demonstrated positive impact on QOL in other populations (Bormann, Oman, Walker & Johnson, 2014), it is noteworthy to mention that the MR interventions in these studies involved on-going weekly instructional meetings, lasting 5-10 weeks and also included additional reading and take-home assignments for the participants.

Given the importance of sustaining QOL in older adults and the paucity of studies that explore interventions to improve QOL in low-income older adults, this study contributes valuable information to the body of literature on this topic. While the results of the study do not indicate a significant increase in QOL domain scores, it should be noted that changes in QOL over time are historically difficult to detect and that development and support of programs that support older adults in various facets related to their physical and mental well-being show promise for the future.

Conclusion

This study demonstrates the plausibility of implementing a MR program in a day center for low-income, urban dwelling older adults. While this study failed to significantly demonstrate that MR improved QOL over the 8-week intervention period, the findings did suggest that participants exhibited some improvement in QOL. Previous studies demonstrated improved QOL using MR utilized lengthier and more multi-faceted MR programs in other populations. The results of this study have reported relevant data that may provide insight into differently designed interventional studies, perhaps as part

of diverse, multi-faceted programs addressing QOL in the community setting and potentially aiding in the improvement of QOL in low-income, urban dwelling older adults.

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Appendix A

(Recruitment Flyer)

Participants are needed in a Research Study:

Mantram Repetition and Quality of Life in Older Adults

I am seeking people age 60 and older, who speak and understand English and are living in San Diego County. I am a Doctoral nursing student at the University of San Diego conducting a study to look at how Mantram Repetition effects people's quality of lives.

Participation includes:

- A one-day, 40-minute Mantram Repetition course.
- Completing a questionnaire about you such as your age and health. If you do not want to answer these questions you do not have to.
- Completing a questionnaire about your quality of life four times: before learning Mantram Repetition, one week, four weeks and eight weeks after learning. (This questionnaire will take about five minutes to complete).
- Keeping track of the number of times and you use Mantram Repetition each day.

Please contact Marissa Mackiewicz at [redacted] or email [redacted] for more information. Thank you for your interest!

Appendix B

Mantram Repetition Teaching Protocol			
Topic	Type of Activity	Activity Content	Activity Length (in minutes)
Introduction to Mantram Repetition Program	Lecture	Provides information regarding the Mantram Repetition Program and includes: basic description, potential benefits, and an outline of course.	3
What is a mantram?	Lecture	Defines the term mantram and explains how the mantram is used.	2
Choosing a mantram	Interactive activity	Provides a list of mantrams. Discuss how participants should select their mantram.	5
When to use the mantram	Lecture	Provides exams of when mantram can be used.	3
Practice using the mantram	Interactive activity	Allows participants opportunity to practice repeating the mantram silently to themselves.	2
Slowing Down	Lecture	Describes process and benefits of Slowing Down.	3
Practice Slowing Down	Interactive activity	Allows participants opportunity to practice Slowing Down.	2
One-pointed Attention	Lecture	Describes process and benefits of One-pointed Attention.	3
Practice One-pointed Attention	Interactive activity	Allows participants opportunity to practice using One-pointed Attention.	2
Review	Lecture	Briefly review three compenents of Mantram Repetition Program: repeating the mantram, slowing down and one-pointed attention.	5
Question and Answers	Discussion	Provide participants opportunity to ask question regarding the Mantram Repetition Program.	10
		Total Time:	40

Appendix C

Individual Participant's Mantram Repetition Log

Participants Name:

Date	Did you use Mantram Repetition today? (Y/N)	Number of times Mantram Repetition used.	Notes on Mantram Repetition Experience (optional)

Appendix D

Mantram Repetition Instructor Log

Instructor Name:

Date	**Time**	**Participants question**	**Instruction given?** (yes/no)	**Content of response provided** (if applicable)

Appendix E

Demographic Profile Questionnaire

1. What is your age? _____
2. What is your gender? Male Female Other (please specify) _____
3. Have you ever been diagnosis with a psychiatric/behavioral health illness? Yes No

   If so, please list diagnosis/diagnoses _____
4. Have you had previous meditation experience? Yes No

   If so, please list _____
5. What is your monthly income? _____
6. What is your housing status?
   a. Owns home.
   b. Renting an apartment.
   c. Single room occupancy hotel.
   d. Living in a shelter.
   e. Living with family/friend(s).
   f. Homeless (living on the streets, in a car).
7. In general would you say your health is?
   a. Excellent.
   b. Very good.
   c. Good.
   d. Fair.
   e. Poor.

Appendix F

Date: 4-19-2018

IRB #: IRB-2017-156
Title: The Effect of Transcendental Meditation on Quality of Life in Low-Income, Urban Dwelling Older Adults.
Creation Date: 6-4-2017
End Date: 6-8-2018
Status: Approved
Principal Investigator: Marissa Mackiewicz
Review Board: USD IRB
Sponsor:

Study History

Submission Type Initial	**Review Type** Expedited	**Decision** Approved
Submission Type Modification	**Review Type** Expedited	**Decision** Approved

Key Study Contacts

Member Marissa Mackiewicz	**Role** Principal Investigator	**Contact** [redacted]
Member Ann Mayo	**Role** Primary Contact	**Contact** [redacted]
Member Ann Mayo	**Role** Co-Principal Investigator	**Contact** [redacted]